

Claims

1 1. A method for treating a subject suffering from cancer, said
2 method comprising the step of:

3 administering to a subject a therapeutically effective amount of a herpes
4 simplex virus (HSV) comprising a nucleic acid sequence encoding for an agent
5 selected from the group consisting of interleukin-12, granulocyte macrophage
6 colony stimulating factor, and cytosine deaminase such that an anti-cancer
7 response is induced in the subject.

1 2. A method according to claim 1, wherein said administering step
2 comprises intratumorally disposing the HSV into the subject.

1 3. A method according to claim 1, wherein the HSV vector is
2 substantially aneurovirulent.

1 4. A method according to claim 3, wherein the HSV vector is
2 replication competent.

1 5. A method according to claim 3, wherein the HSV vector
2 comprises a deletion of the $\gamma_134.5$ gene.

1 6. A method according to claim 5, wherein IL-12 genes are
2 inserted within the $\gamma_134.5$ gene deletion.

1 7. A method according to claim 6, wherein the IL-12 genes
2 comprise subunits p35 and p40 separated by an IRES sequence.

1 8. A method according to claim 7, wherein said IL-12 encoding
2 nucleic acid sequence bicistronically expresses the p35 and p40 subunits to
3 produce self-assembling, heterodimeric IL-12 in the HSV vector.

1 9. An anti-tumor pharmaceutical composition comprising a herpes
2 simplex virus (HSV) vector comprising a nucleic acid sequence encoding for a
3 compound selected from the group consisting of IL-12, GM-CSF, and CD
4 operatively linked to a promoter, and a pharmaceutically acceptable carrier.

1 10. A pharmaceutical composition according to claim 9, wherein
2 said HSV vector is substantially aneurovirulent.

1 11. A pharmaceutical composition according to claim 9, wherein
2 said HSV vector is replication competent.

1 12. A pharmaceutical composition according to claim 9, wherein
2 said HSV vector has been transformed with an expression cassette comprising
3 nucleic acid sequences encoding for the p40 and p35 of IL-12, said subunits
4 being separated from each other by an IRES encoding sequence.

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1 13. A pharmaceutical composition according to claim 12, wherein
2 said HSV vector includes a deletion of the $\gamma_134.5$ gene.

1 14. A pharmaceutical composition according to claim 9, wherein the
2 expression of the nucleic acid sequence encoding for IL-12 results in
3 constitutive production of IL-12 in vivo.

1 15. A pharmaceutical composition according to claim 9 which has
2 been formulated for injection.

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